CLAIMS

1. An information-processing method, comprising:

relating range information and failure-recovering information to an address of a memory;

performing ordinary processes while detecting illegal access to the memory;

judging upon detection of the illegal access to the memory whether or not failure-recovering is possible based on the range information and the failure-recovering information; and

performing failure-recovering processes when the failure-recovering is possible.

2. The information-processing method as claimed in claim 1, further comprising: performing halt processes when the failure-recovering is not possible.

3. The information-processing method as claimed in claim 1, wherein the failure-recovering information includes items of a fixed size attribute and a variable size attribute.

4. The information-processing method as claimed in claim 3, wherein the variable size attribute includes an upper expanding attribute and a lower expanding attribute.

5. The information-processing method as claim 2, wherein said performing failure-recovering processes includes storing data if the data is storable.

6. The information-processing method as claimed in claim 1, wherein said performing failure-recovering processes includes:

judging whether an access type is of read access or of write access; and

performing failure-recovering whose content is different according to said judging.

7. The information-processing method as claimed in claim 6, wherein failure-recovering without a specific process is performed when the access type is of

write access, and failure-recovering after storing a predetermined value into a current address of the memory is performed when the access type is of read access.

8. The information-processing method as claimed in claim 4, wherein said judging determines that the failure-recovering is not possible when the failure-recovering information indicates an upper expanding attribute and a downward illegal access to the memory is detected.

9. The information-processing method as claimed in claim 4, wherein said judging determines that the failure-recovering is not possible when the failure-recovering information indicates a lower expanding attribute and an upward illegal access to the memory is detected.

10. The information-processing method as claimed in claim 4, wherein said judging determines that the failure-recovering is not possible when the failure-recovering information indicates a fixed size attribute.

11. The information-processing method as claimed in claim 1, wherein said performing failure-recovering processes includes:

allocating some other area of the memory than an area of the memory where the illegal access has occurred; and

accessing the other area of the memory allocated by said allocating.

12. The information-processing method as claimed in claim 1, wherein the failure-recovering information includes an item of a terminator attribute, and

wherein, when the terminator attribute indicates that data should have a terminated value at the end, said failure-recovering processes includes adding the terminated value to the end of the data.

13. An information-processing apparatus, comprising:

a memory;

an address register operable to store an address of said memory, range information, and failure-recovering information;

an illegal access-detecting unit operable to refer said address register to detect illegal access to said memory;

an ordinary processing unit operable to access said memory to perform ordinary processes;

5   an failure recovery-judging unit operable to refer said address register to judge whether or not failure-recovering is possible when said illegal access-detecting unit detects the illegal access to said memory; and

a failure-recovering unit operable to perform failure-recovering when said failure recovery-judging unit judges that the failure-recovering is possible.

10   14. The information-processing apparatus as claimed in claim 13, further comprising:

a halt processing unit operable to perform halt processes when said failure recovery-judging unit judges that the failure-recovering is not possible.

15. A failure information-supervising system, comprising:

15   an information-processing apparatus; and

an information center operable to communicate with said information-processing apparatus to transmit failure-recovering information,

wherein said information-processing apparatus, comprising:

a memory;

20   an address register operable to store an address of said memory, range information, and failure-recovering information;

an illegal access-detecting unit operable to refer said address register to detect illegal access to said memory;

an ordinary processing unit operable to access said memory to perform

25   ordinary processes;

an failure recovery-judging unit operable to refer said address register to judge whether or not failure-recovering is possible when said illegal access-detecting unit

detects the illegal access to said memory; and

a failure-recovering unit operable to perform failure-recovering when said failure recovery-judging unit judges that the failure-recovering is possible.

16. A processor, comprising:

an address register operable to store an address of an external memory, range information, and failure-recovering information;

a command-processing unit operable to refer said address register to access the external memory; and

an illegal access-detecting unit operable to refer said address register,

wherein said illegal access-detecting unit outputs exception signals to said command-processing unit when said illegal access-detecting unit detects that said command-processing unit has illegally accessed the external memory.

17. A compile method, comprising:

compiling a source code written in programming language supporting a pointer;

generating a code for the pointer to point to a variable area according to the source code, the pointer including a pointer value; and

setting to the pointer value a set of an address of the variable area, range information of the variable area, and failure-recovering information utilized when illegal access to the variable area occurs.

18. A compile method, comprising:

compiling a source code written in programming language supporting a pointer;

generating a code for the pointer to point to a variable area according to the source code, the pointer including a pointer value;

setting to the pointer value an address of the variable area and range information of the variable area; and

setting, to the variable area pointed by the pointer value, failure-recovering information utilized when illegal access to the variable area occurs.

19. The compile method as claimed in claim 17, wherein the failure-recovering information is managed separately from the source code.

5   20. The compile method as claimed in claim 17, further comprising:

adding the failure-recovering information to the source code to generate an intermediate code.

21. A compiler, comprising:

a language-parsing unit operable to compile a source code written in

10   programming language supporting a pointer to output a code; and

a code-generating unit operable to add a code for failure-recovering information to the code outputted from said language-parsing unit, the code for the failure-recovering information corresponding to a variable being included in the code outputted from said language-parsing unit.

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